

25X1

Approved For Release 2003/08/08 : CIA-RDP79B01709A003500060018-0

TOP SECRET

COMOR-D-13/52-21

10 March 1967

MEMORANDUM FOR: Committee on Overhead Reconnaissance

SUBJECT: Color from Black and White Process

REFERENCES: a. COMOR-M-398  
b. COMOR-M-399, para 3

25X1  
25X1

1. Following [ ] 19 January briefing (ref a) to COMOR on the [ ] experiments with color from black and white process, COMOR discussed the briefing again at its 26 January meeting (ref b). On 26 January the Chairman requested NRO to report on the feasibility of flying an experiment. The attached memorandum from the Director, NRO Staff, dated 27 February, is the NRO reply to [ ] request.

25X1

2. This office has informally discussed the NRO reply with NPIC. We appreciate that NPIC confined itself to a study [ ] from the reproduction standpoint. We also recognize that at the time of the 19 January briefing it was pointed out that application of the technique to panoramic cameras would be quite difficult. In the NRO reply, General Berg elaborated on some of the problems from the acquisition standpoint.

25X1

25X1

3. It is requested that COMOR now reevaluate the potential of [ ] developments taking into consideration references a and b and the attached NRO memorandum. It appears to this office that if the process has a potential, it will require sponsorship in order to insure coordinated programs between those with reproduction responsibilities and

NRO review(s)  
completed.

[ ]  
Copy 38 of 59

25X1

25X1

25X1

Approved For Release 2003/08/08 : CIA-RDP79B01709A003500060018-0

~~TOP SECRET~~

COMOR-D-13/52-21

those who must modify sensor systems to acquire this type of photography. It is proposed, therefore, that members have an opportunity to discuss further the color from black and white process at the COMOR meeting on 23 March. Prior to cob 17 March, please advise this office whether there are any particular aspects which need be covered, which might require further technical briefings from either NRO or NPIC.

25X1

Executive Secretary

Committee on Overhead Reconnaissance

Attachment:

NRO-

25X1

Copies 2, 3

State TCO

4

DIA

5, 6, 7, 8

DIA TCO

9, 10

OACSI TCO

11, 12

ONI TCO

13, 14, 15, 16

AFNIN TCO

17, 18

NSA TCO

19, 20, 21

NRO TCO

25X1

25X1

25X1

~~TOP SECRET~~

25X1

Approved For Release 2003/08/08 : CIA-RDP79B01709A003500060018-0

~~TOP SECRET~~

COMOR-D-13/52-21

## (S) NATIONAL RECONNAISSANCE OFFICE

WASHINGTON, D.C.

25X1

27 February 1967

THE NRO STAFF

## MEMORANDUM FOR THE CHAIRMAN, COMOR

25X1

SUBJECT: [REDACTED] 'Color from Black and White Process'

This memorandum is in response to Paragraph 2 of COMOR-M-399 dated 26 January 1967.

25X1

Through the special efforts of NPIC's [REDACTED] various members of the NRO have become well acquainted with the principles and advantages, as well as some of the fundamental limitations of [REDACTED] 'Color from Black and White Process.' It is the opinion of the NRO Staff that [REDACTED] process offers several interesting future possibilities; it also poses rather fundamental practical problems which require solution before the process can be expected to become useful in photographic reconnaissance collection systems.

25X1

25X1  
25X1

The NRO is evaluating this technique to determine its applicability as a method for duplicating by continuous contact printing, [REDACTED] black and white-color from a color original at resolutions [REDACTED]

25X1  
25X1

25X1

Several [REDACTED] proposals have been submitted to conduct a demonstration of the most critical element of the process - namely, the problem of first creating and then, during exposure, placing in absolute and intimate contact with the acquisition film, a material which is optically non-interfering and which carries three grids with each grid acting as a near-perfect primary color transmitter. Such a system could become quite unwieldy if a high acuity panoramic camera such as CORONA [REDACTED] were contemplated.

25X1

25X1

25X1

25X1

Approved For Release 2003/06/08 : CIA-RDP79B01709A003500060018-0

TOP SECRET

COMOR-D-13/52-21

One apparent way to eliminate this problem of contact between film and grating during exposure would be to incorporate a three-colored grid directly onto the original negative during film manufacture.

Unfortunately, it is difficult at this time to identify credible manufacturing techniques which could produce sufficiently high spatial frequencies to be attractive. Dye transfer from gelatin matrices (a la Technicolor) are generally limited to square wave frequencies in the order of about 90-100 lines/mm (to produce a 45-50 line/mm recording) and then only in one plane or direction. By the time three separate dye transfers at 60° radials were made onto a single gelatin layer, it is expected that achievable frequencies would be quite coarse. It is understood [ ] has launched an extensive in-house effort to assess the elements of this problem and evaluate the feasibility of improving the technique.

25X1

25X1

25X1

At this point in time, it is apparent that much [ ] in-house and joint effort [ ] is realistically directed - towards the goal of 16 mm original camera black and white-color, and duplicate printing 16 mm color [ ] black and white-color system for commercial television use (less than 30 lines/mm over an 11 x 16 mm format).

25X1

There remains a great deal of additional investigation to be done to overcome the fundamental limitations of this process as may be applied to high performance photographic acquisition systems. The NRO will continue to review the progress of this research project. There appears to be no useful operational test or evaluation that could be performed at this time.

25X1

[ ]  
RUSSELL A. BERG  
Brigadier General, USAF  
Director

25X1

TOP SECRET

TOP SECRET

COMOR-D-12/52-21

Copy 1 DCI TCO for USIB/S  
22 TSO CIA  
23 [REDACTED]  
24-32 Asst Ops/NPIC  
33 NPIC for C/IAS/DDI (Attn: [REDACTED])  
34, 35 CIA COMOR Member  
36, 37 CGS  
38, 39 Ch/PWG  
40 Special Center TCO  
41 CGS ReqBr/RecceGrp  
42 D/OSI  
43 DDP TCO  
44 DDS&T [REDACTED]  
45 C/Action/DDS&T  
46 ASA/D/DCI/NIPE  
47 D/FMSAC  
48 D/OEL  
49 D/SA  
50 D/O/OSA  
51 Intel/O/OSA  
52 SS/OSA  
53 SA/OSA  
54-58 SA(COMOR)/DDS&T  
59 D/OSP

TOP SECRET